

5.0 CONCLUSIONS

While previous testing of sediment cores showed high concentrations of several chemical contaminants, such as metals, petroleum hydrocarbons, and PCBs, in the shell mounds, results from the mussel bioassays demonstrated that these contaminants were not being released into overlying waters. These results are consistent with the presence of the more labile contaminant classes, such as volatile aromatic hydrocarbons, in the middle strata of the mounds. Because these aromatic compounds are water soluble with low affinities for particles, it is unlikely that they would have persisted for more than 30 years in the shell mounds if active exchange with overlying waters is occurring. Instead, the labile contaminants as well as other more hydrophobic contaminants have persisted in the shell mounds for several decades, and it does not appear that the contaminants are susceptible to remobilization during normal or severe storm conditions. Therefore, the results indicated that the shell mounds were not significantly affecting water quality.

Analyses of surficial sediments near the shell mounds indicated the presence of some contaminants that were likely related to non-uniform distribution of drilling-waste solids displaced from the shell mounds. The presence of drilling wastes was reflected by elevated barium concentrations in selected sediment samples. However, the absence of clear spatial gradients relative the shell mounds suggested that the distributions of drilling waste solids near the shell mounds may have been related to individual events, such as platform removal, vessel/barge anchoring, and/or trawling that resulted in physical disturbances which displaced solids (e.g., cuttings) from the mounds. Conversely, based on the absence of spatial gradients in barium concentrations, it did not appear that local currents are causing dispersion of shell mound solids. Regardless, the presence of shell mound solids contributed to the present heterogeneity of sediment quality conditions near each of the shell mounds.